

<p>97-282334/26 A88 J01 GKSS FORSCHUNGSZENTRUM GEESTHACHT GMBH</p>	<p>KNVS 95.12.07 *DE 19545701-C1</p>
<p>95.12.07 95DE-1045701 (97.05.28) B01D 69/12, 61/00, 67/00 Composite nano-filtration membrane - has known base membrane and selective separation layer made by coating with aqueous hydroxyalkyl cellulose solution and crosslinking with di:aldehyde C97-090945 Addnl. Data: SCHMIDT M, PEINEMANN K</p>	<p>A(3-A4A, 8-D, 11-B5D, 11-C2, 12-W11A) J(1-C3)</p>
<p><u>ADVANTAGE</u> An efficient hydrophilic NFM with high thermal stability and good stability in organic solvents, which is produced by a simple, low-cost process without using organic solvents or environmentally harmful substances.</p>	<p><u>PREFERRED MEMBRANE</u> The HAC is crosslinked with dialdehydes(s), preferably glyoxal or glutaric dialdehyde, until it becomes insoluble in water. Membrane (A) consists of polyether-imide, polyacrylonitrile, polysulphone or PVDF. Layer (B) has a thickness of 0.01-0.5 micron. The NFM has a high retention for substances with a mol. wt. of 300 and upwards, combined with a NaCl retention of less than 20%, and is stable in aqueous solutions containing more than 5 wt% organic solvent such as alcohols, ethers, amines or esters. Operating temperatures of more than 70° C are used for separation processes</p>
<p><u>USE</u> In membrane filtration processes for the separation of the components of systems containing substances with mol. wts. of 200-2000.</p>	<p><u>EXAMPLE</u></p>

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Asymmetric polyether-imide membranes were coated with 0.1 wt% aqueous hydroxypropyl-cellulose solution and then crosslinked with glutaric dialdehyde for 20 mins. at 70° C. The membranes were then evaluated in dead-end filtration tests at 20° C with a trans-membrane pressure difference of 10 bar, using solutions of low-mol. wt. compounds in aqueous systems contaminated with 10 wt% organic solvent.

Under these conditions the membranes showed mol. wt. cut-off values of 600, 610, 590, 575, 620 and 525 for mixtures contaminated with acetone, MEK, ethanol, isopropanol, THF and EtOAc (5 wt%) respectively, with corresponding substance flow rates of 1.25, 1.32, 1.22, 1.19, 1.46 and 1.11 l/m²/hr./bar. (SL)
(6pp1712DwgNo.0/0)

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